

Automatic opening arrangement esp. for banknote container - has opening tool movable perpendicularly to gripping plane between gripping devices

Patent number: DE3931176
Publication date: 1991-03-28
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Classification:
 - international: **B65B69/00; G07D11/00; B65B69/00; G07D11/00;**
 (IPC1-7): B65B69/00; B67B7/00; B67C9/00
 - european: B65B69/00; G07D11/00D2; G07D11/00D2D;
 G07D11/00D6B
Application number: DE19893931176 19890919
Priority number(s): DE19893931176 19890919

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Abstract of DE3931176

An automatic container opening arrangement has gripping sections on at least two sides not connected to the interior of the container and a desired opening section between the gripping sections. At least two gripping devices (64, 66, 68) are arranged at a distance in a common gripping plane. An opening tool (172) moves between the gripping devices and perpendicularly w.r.t. the gripping plane. A gripping device has two gripping pins (66, 68) rigidly mounted on a plate (64).

USE/ADVANTAGE - Automatically opening one-time security containers, e.g. for carrying banknotes to bank. Saves time and storage space.

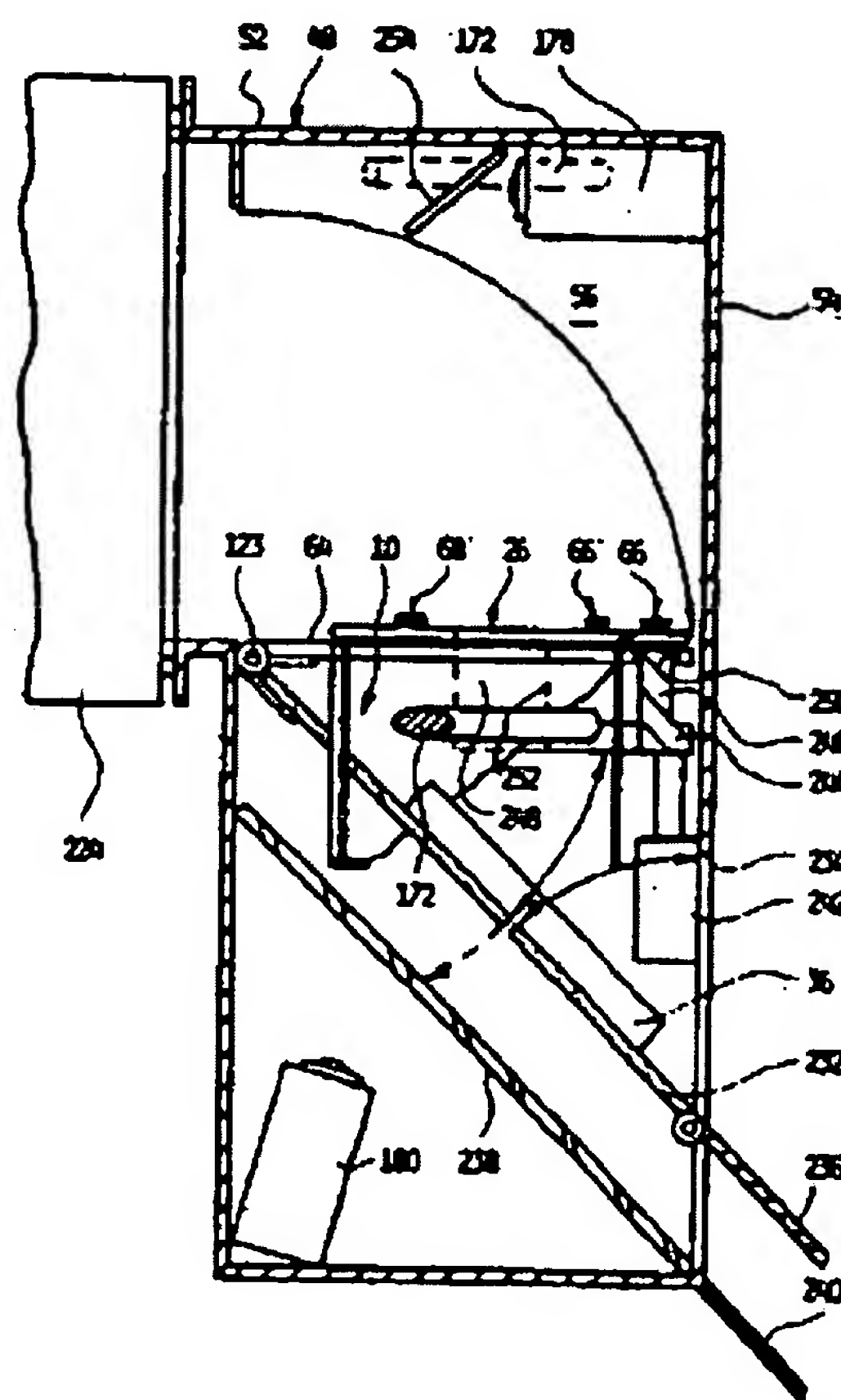


Fig. 10

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Description OF DE3931176 The invention concerns equipment for machine opening of containers in accordance with the generic term of the requirement 1. Containers of the kind interesting in the available invention are in particular one-way safety containers, in which notes and such a thing are brought to a bank from not authorized access third protected to a safe-keeping place, usually. This takes place so far using made of metal of manufactured money bombs, which are opened manually, emptied and counted out in the bank. These work is time-consuming; beyond that the money bombs are very voluminous, so that at the night safe a relatively large memory space secured against entrance must be held ready. Therefore equipment is to be created by the available invention for machine opening of containers in accordance with the generic term of the requirement 1. Thus entered such containers can be emptied immediately after throwing in into a night safe; only valuable contents are transported into a protected depository, while the emptied worthless containers are given simply to a wastebasket. The opening equipment according to invention is characterised by a mechanically simple structure and can in the wall recesses planned for the einwurfschaechte of day and night safes with banks easily be accommodated. Favourable training further of the invention are indicated in unteranspruechen. A grab equipment, as it is given in the requirement to 2, is characterised by a mechanically particularly simple and durable structure. With opening equipment in accordance with requirement 3 one can train the grab pins at the free end additionally with the grab section of a container a reserved bulge or with a rough surface, whereby nevertheless a safe rerelease of the emptied container from the grab equipment is ensured. Also the further training of the invention in accordance with requirement 4 serves the goal of seizing on the one hand the grab sections of a container for the opening procedure surely of guaranteeing on the other hand that the emptied container is again released reliably by the grab

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equipment. With opening equipment in accordance with requirement 5 one has a very safe holding of the grab sections, even if this just like the remainder of the container from a material of low friction are manufactured. Such a wall material is regarding safe slipping out of contents of the broken open container of advantage. Opening equipment in accordance with requirement 6 can be served particularly comfortably. The user needs to attach the container which can be opened only at the tiltable grab equipment, which can be managed also with flexible containers easily. Besides in this way the container is simply alignable on the opening tool, which causes difficulties otherwise with flexible containers. With opening equipment in accordance with requirement 7 the container is laminar continuous supported both with the attachment and when swivelling the grab equipments, which in particular with strongly filled flexible containers of advantage is. Nevertheless one has a free passage under the middle part of the container which can be opened, which makes the use possible of a simple opening stamp with the opening procedure, which will proceed perpendicularly to the grab level. The further training of the invention in accordance with requirement 8 brings the aforementioned advantage with mechanically particularly simple structure of the equipment, whereby the support plate can form then, if it is moved downward not completely into the vertical one to separate for example only around 45 DEG from the grab level is downward folded, at the same time a chute or a part of such, over which contents of the container into the protected depository arrived. The further training of the invention in accordance with requirement 9 is regarding as compact a dimensions of the opening equipment of advantage as possible. With the further training of the invention in accordance with requirement 10 it is reached that the container which can be opened given to the opening equipment can be taken up also by the lower surface by a camera. The further training of the invention in accordance with requirement 11 is regarding a particularly small overall height of the opening equipment of advantage. The front plate of the equipment is being certain, only a very small part of the front plate, which a part of the grab equipment represents, to drawing in a container is essentially induced. With opening equipment in accordance with requirement 12 it is ensured that the grab equipment is on the one hand tiltable, on the other hand on its

entire linear adjusting path with a guidance co-operates. In accordance with requirement 13 one receives a solvable connection between the tiltable grab equipment and the linear drive in particularly simple way, whereby no accurate Ausfluchtung of the appropriate clutch parts is necessary. With opening equipment in accordance with requirement 14 the read head, which co-operates more attached at the end of a container co-operating with the tiltable grab equipment by machine readable information, represents at the same time a support plate, which forms a part of the second grab equipment. Thus this read head comes automatically also into a situation aligning with the second end of the container and can be used thus then also to read off there intended by machine readable information. The further training of the invention in accordance with requirement 15 is regarding opening containers of different length of advantage. The respective length of the container can be noted e.g. the head-lateral grab section of the container in by machine readable form. The linear drive is then steered in such a way the fact that the first grab equipment is moved according to the length of the container whereby with containers of different length is ensured that the rear grab section of the container comes independently of its length with the same place to holding. Thereby one receives a particularly simple mechanical structure of the opening equipment, in particular if the first grab equipment does not exhibit moved clamping means for example in accordance with requirement 2. With opening equipment in accordance with requirement 16 one can document the condition, in which a container is up-supplied, in a simple manner lasting. Opening equipment in accordance with requirement 17 permits a taking up to a very large number from containers to small costs. The video cassettes used for the recording can after a time of some weeks, if it is guaranteed that on a day concerned no objections were raised bezueglic the dispatching, is again again described. With opening equipment in accordance with requirement 18 one can do without to by machine readable information from the container a separate read head for reading off, whereby one receives on the one hand a mechanically simple structure of the equipment, on the other hand a high flexibility concerning change of the kind and evaluation of the by machine selectable information. With opening equipment in accordance with requirement 19 one can pass the by machine

readable information on carried by the container to a central computer or set a receipt message off to the enterprise, which let the container up-supply by an employee. If desired, one can leave an appropriate receipt in plain text expressions by the opening equipment also. With equipment in accordance with requirement 20 it is guaranteed that in the container piles present of notes or other documents than piles into the secured depository is brought, whereby the disk parts broken off by the soil and/or cover of the container form separation maps between the successive piles. With the further training in accordance with requirement 21 it is reached that only such containers can be pushed into the equipment, whose cross section does not project over the cross section of a special container spent for dispatching. Thus an abuse is difficult as waste collecting tanks. With equipment in accordance with requirement 22 also articles, which exhibit smaller cross section than the special containers planned for dispatching, are not received. Below the invention is more near described on the basis remark examples with reference to the design. In this shows Fig. 1 a supervision on out flexible foil a manufactured safety envelope for the dispatching of notes, partly away-broken; Fig. 2 a supervision on the face of equipment for machine opening of a safety envelope in accordance with Fig. 1, whereby the right half of the equipment front plate is away-broken; Fig. 3 a horizontal cut by in Fig. 2 opening equipment shown along the there cut line III III, whereby with upper turning over co-operating grab head to the horizontal is drawn in shown turned and something in the equipment inside; Fig. 4 a vertical profile by in Fig. 2 opening equipment shown along the there cut line IV-IV, whereby this figure shows the operator-lateral equipment section; Fig. 5 a similar cut as Fig. 4, whereby however a middle equipment section is shown; Fig. 6 a similar cut as Fig. 4, whereby however the section of the equipment remote of the operator is shown; Fig. 7 a block diagram of different electrical and hydraulic components of the opening equipment after Fig. 2; Fig. 8 a supervision on the front plate of modified equipment for machine opening from safety envelopes manufactured from flexible foil material to the dispatching of notes; Fig. 9 a horizontal cut by in Fig. 8 opening equipment shown along the there cut line IX-IX;

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Description of DE3931176



Die Erfindung betrifft ein Gerät zum maschinellen Öffnen von Behältnissen gemäss dem Oberbegriff des Anspruches 1.



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Fig. 10 a vertical profile by the opening equipment after the Fig. 8 and 9 along the cut line X-X von Fig. 9 in opposite Fig. 8 and 9 reduced measure staff; Fig. 11 a supervision on a rigid reactor containment to the Aufliefern of notes; Fig. 12 transversals a cut by in Fig. 11 container shown; Fig. 13 a supervision on the front side of equipment for machine opening of a container in accordance with Fig. 11 and 12, whereby half of the equipment is cut in the vertical transverse centre plane; Fig. 14 a vertical profile by the opening equipment of Fig. 13 along the there cut line XIV XIV; and Fig. 15 a similar opinion as Fig. 15, in which further opening equipment is shown. In Fig. 1 is altogether marked with 10 an envelope secured against not authorized opening to the dispatching of notes and similar securities in a night safe. It is by folds foil course as well as two transversal welds 12, 14 and two longitudinal welds 16, 18 manufactured, whereby into the bags, which result between to upper and lower turning over lying folding lines and the transversals the welds 12, 14, from cardboard manufactured reinforcement strips 20, 22 it is inserted, which is not led by machine readable information I1 and/or I2 tragen. Da the welding seam 18 across the welding seam 14 outside, can the reinforcement strip 22 still by the user with information is printed on and after into into Fig. 1 with on the right of convenient end open bag to be pushed, which is limited by the weld 14 and the lower folding line of the Folienmaterialies. The reinforcement strips 20, 22 form grab sections 24, 26 for lying foil sections together with over and among them. The upper grab section contains two continuous grab holes 28, 30. In the area lying between a vorderwand 32 and a rear wall 34 of the envelope 10 a pile 36 from notes is schematically suggested. The charging hole of the envelope is lasting locked for attached adhesive layer 40 as well as an adhesive layer 42 attached on the exterior of the rear wall 34 by a free arm cover 38 using on the rear side the same. The adhesive layers 40, 42 cling

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so toughly one on the other that the free arm cover 38 cannot be taken off without damage of the Folienmateriales from the rear wall 34. For authorized opening of the envelope 10 34 aligning perforations 44, 46 running over the entire envelope width are intended in the vorderwand 32 and the rear wall. Machine opening and emptying of the envelope 10 take place roughly spoken in such a way that one holds the grab sections 24, 26 with two grab equipments and then with a ruler-similar opening tool perpendicularly to the grab level, thus the indication level of Fig. 1, against the center of the envelope 10 drives, whereby the perforations 44, 46 are broken open and the note pile 36 of the envelope 10 is squeezed out. It can be led then over a chute into a secured depository or directly to a counting automat. Into the Fig. a forward open altogether housing with a bottom wall 50, cover wall 52, rear wall 54 and side panels 56, 58, marked with 48, has 2-6 in its mechanical components opening equipment shown. The open side of the housing 48 lying in front is locked by a front plate 60. In a centric rectangular recess 62 of the front plate 60 concisely a supporting plate 64, those sits on its front of two grab pins 66, 68 carries and in Fig with not working equipment. 2 to the rear and/or in Fig. 3 carrying thighs 70 managing downward exhibits, like in particular from Fig. 6 evidently. The supporting plate 64 has for its part a centric rectangular recess 72, into which a glasfenster 74 is firmly assigned, e.g. bonded. As from the Fig. 3 and 6 evidently, is provided the carrying thighs 70 on their inside with in each case a guidance rib 76, which runs in each case in an assigned guide groove 78, which is intended in the side of a base plate 80. The base plate 80 is for its part linked over joints 82 at the front plate 60. The base plate 80 has a centric rectangular recess 86, into which a glasfenster 88 is inserted. Behind the latter an only schematically suggested bar code read head 90 lies. On their exterior the carrying thighs 70 are provided with a further guidance rib 92, 94 in each case, those also u-shaped cross section profile exhibiting guide rails 96, 98 carried by the side panels 56, 58 of the housing 48 co-operate. The thighs of the guide rails 96, 98 in each case a recess 100 have, which the guidance ribs 92, lying above, 94 can pass through, if the supporting plate 64 fully onto the base plate 80 is pushed. Co-operate on the backs of the carrying thighs of 70 sid rack segments 102 applied, those with the upper Trums of two

reciprocally toothed belts 104, 106 provided with teeth. These run over front wheels 108 and rear wheels 110, which are rigidly coupled under itself by continuous waves 112, 114. The wave 114 is propelled by an electric motor 116, suggested as schematically. The upper Trum of the toothed belts 104, 106 is supported by L-shaped profile an exhibiting supporting rail 118 in each case. Between toothed belts 104, 106 find itself two from glass manufactured support plates 120 and 120 min, which are attached at the external end on a stand 122, 122 min over joints 123 in each case and are movable by a double acting hydraulic cylinder 124, 124 min, which attacks in the neighbourhood of the drag axis over a joint 125 and is for his part articulated at the housing 48 supported, from the horizontal shown in the design supporting position, into which it form an essentially going through surface, into a lowered chute position, into which it form a funnel. As from Fig. 4 evidently, a strip 126 is arranged over that place, because of which the base plate 80 comes to be in the condition turned by the front plate 60. This is by vertical guide rails 128, 130, those on the side panels 56, 58 sits, vertically led. Levers 132 attack over pin/slotted hole connections 134 at the ends of the strip 126 and are for their part stored over pins 136 at the housing. For the rotation of the levers double acting hydraulic actuators 138, which are articulated with the levers 132 and/or the neighbouring housing side panel connected by pins 140, 142, serve 132. The lower surface of the strip 126 carries a lining 144 from a material with high friction. Instead the lower surface of the strip can be occupied with short pointed thorns 126 also. The height of the strip 126 corresponds at least the height to the recess 62 of the front plate 60, so that with lowered strip no entrance to the inside of the equipment is more given to 126. As from Fig. 6 evidently, a similarly propelled strip 126 min can be, these is however at least then, if the grab pins 66, 68 are provided as shown with the Herabrut grab holes 28, 30 of the envelope 10 a preventing bulge 146, in many cases dispensable with the rear end of the housing. The appropriate parts of the clamping mechanism are provided with reference symbols, which result from the reference symbols for the front clamping mechanism through appendices of a comma. In the range of the grab pins 66, 68 the rear strip 126 min and the rear lining 144 min are provided with the grab pins taking up recesses 148. Like in

particular from the Fig. 2, 3 and 6 evidently, the bulge 146 extends only over half of the grab pin extent, the under or back of the grab pins is spherically rounded off, as with 150 shown. The lower end of the grab pins 66, 68 extends by a feather/spring chamber 152 planned in the assigned carrying thigh 70. A linked up spiral spring 153 intervenes there with its end on the inside in the grab pin, while its exterior end at the carrying thigh 70 is supported. The haltestellung of the grab pins 66, 68 shown in the designs is given by a notice cam 154, which co-operates with a recess 156 trained in the soil of the feather/spring chamber 152. Furthermore the grab pins 66, 68 carry a gear wheel 158, which combs with an intermediate gear wheel 162 arranged in a slot 160 of the carrying thigh 70. The latter is located in fully to the rear the position of the supporting plate 64 in interference with the pinion 166 of an electric motor 168, brought in in the housing 48. By exciting the electric motors 168 one can thus the grab pins 66, 68 180 DEG, whereby the roundings 150 in Fig. 6 right to lie comes. The grab pins 66, 68 cannot hold now the grab section 24 no more, so that after opening an envelope 10 envelope half under its weight, hanging there, slips downward. After the raising of the strip 126 also the second envelope half becomes released. In Fig. furthermore 6 is with the toothed belt shown 104 co-operating synchros 170, whose output signal is used for the track-dependent controlling of the excitation of the electric motor 116. As from Fig. evidently, an opening ruler 172 is arranged 5 over the gap lying between the support plates 120 and 120 min. This is led and through at this attacking double acting actuators 176 is vertically moved with its two ends by parallelogram linkage 174. Like likewise from Fig. 5 evidently, with a angeblockten light 179 is over the support plates min a wide angle television camera 178 arranged 120 and 120, over which the top side of a drawn in envelope is taken up. For the admission a further wide angle television camera 180 with angeblockter light 181 serves the envelope lower surface. Their housings is linked and at the same time articulated connected with the piston rod of a hydraulic double acting actuator 184 at the lower surface of a chute 182 manufactured from glass. This serves the chute 182, which is articulated at the housing 48 stored over pins 186 for adjusting. Fig. the fully raised position of the retouching 182 shows 5, and in this the objective axle of the television camera 180 vertical those stands for chute 182 can into two

different positions be lowered, into which it (see the schematic representation of Fig. 7) a promotion way to a counting automat 188 set up in a secured area and/or (broken drawn in) to a wastebasket for empty envelopes manufactures. In Fig. 7 is the different mechanical parts of the opening equipment only schematic and not in their spatial allocation described above shown. A freely programmable computer 192, which co-operates with a monitor 194 and a key field 196 as well as it assigned a mass storage 198, keeps the output signal of a tracer 200, which is arranged in the front plate 60 and serves input for introducing an input cycle by the person up-supplying the envelope. Furthermore the computer 192 receives the output signal of the read head 90 and the synchro 170.

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Fig. 10 einen vertikalen Längsschnitt durch das Öffnungsgerät nach den Fig. 8 und 9 längs der Schnittlinie X-X von Fig. 9 in gegenüber Fig. 8 und 9 reduziertem Massstabe;



Fig. 11 eine Aufsicht auf einen steifen



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The computer 192 controls a working of the hydraulic actuators 84, 124, 138, 176 and 184 via a valve bank 202. The valve bank 202 is connected with the discharge opening of a pressure pump 204 as well as with a return pipe 206, which leads to a hydraulic central sump 208. Furthermore the computer 192 controls a working of the television cameras 178 and 180, the lights of 179 and 181 as well as two video recorders 210, 212, which note the picture output signals of the two television cameras 178, 180. The computer is at the output connected furthermore with a data communication interface 214 and behind the front plate of 60 sitting receipt printers 216. Those latter transferred data can be conveyed also by telephone to that customer, who the straight opened envelope by an assigned person up-supply let over automatic selecting equipment 218. Error messages can be spent over a loudspeaker 220 attached on the front plate 60, which is headed for by the computer 192 over a Sprachsynthesizerkreis 221. The equipment described above works as follows: The one envelope 10 up-supplying person hangs the grab section 24 of this envelope on the grab pins 66, 68 normally concisely of the supporting plate 64 in-sitting in the front plate 60. Subsequently, the tracer 200 is operated. The read head 90 picks now first the information out I1 present at the reinforcement strip 20. This information is from the place with a sequential number, spending the envelope, and - if desired - provide with an additional bank coding, which corresponds typically to no usual bar code character representation, so that it cannot be produced with a usual bar code printer. The computer 192 examines now whether it with the envelope present before the read head 90 at all an envelope spent by the bank does not actist this the case, the input cycle broken off, whereby over the receipt printer or the loudspeaker 220 attached at the front plate an appropriate error message is spent. If the computer 192 states that the envelope is an own envelope which can be drawn in, then it determines

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198 entered data of the branch concerned the customer, to whom this envelope was spent, as well as its account number out before into the own mass storage. If the envelope was spent by another branch, the appropriate data are requested over the interface 214 by the central bank computer. The computer 192 heads for now the actuator 84 in the sense of drawing its piston rod, whereby the supporting plate 64 from into Fig. 2 vertical position shown into the horizontal one puts down. During this lagging the guidance ribs occur 92, 94 the guide rails 96, 98 and the rack segments 102 come into interference with the toothed belts 104, 106. During the surrounding movement the supporting plate carries 64 forward to their hung up upper grab section 24 of the envelope 10 which can be opened. Now the electric motor 116 is started, and the supporting plate 64 is pulled in the inside the housing 48. Fig. a snapshot from the first drawing in phase, in which the guidance ribs 76 run still in the guide grooves 78 of the base plate 80, shows 3 the external guidance ribs 92, 94 into the guide rails 96, 98 the further movement of the supporting plate 64 however already draws in the grab pins 66, 68 the envelope 10 far in the housing 48, until the supporting plate 64 the rear, in Fig. 6 shown position reaches. This is supervised either by counting the output signals of the synchro 170 or by a limit switch not shown in the design. Now the actuators 124 in the sense of driving their piston rod out with pressure are subjected, and the strips 126, 126 min come into plant to the top side of the grab sections 24, 26, which are supported for their part by the top side of the base plate 80 and/or the top side of the supporting plate 64. Thus the grab sections 24, 26 are firmly positioned. The computer 192 activates now the read head 90 for the selection of the information 12 carried by the reinforcement strip 22. The reinforcement strip 22 carries imprinted information, e.g. the total amount of the notes in the envelope and if necessary additional information from the user such as processing desires or referring to foreign currencies, cheques and such a thing. Subsequently, the computer arranges 192 that the television cameras 178, 180 as well as sources of light 179, 181 are activated for lighting up the upper and lower surface of the envelope which can be opened and the pictures produced by the upper and lower surface by the video recorders 210, 212 are noted. Now the chute becomes 182 by application of pressure of the actuator 184 in in Fig. 7 taken off

shown position posed, and the support plates 120 and 120 min is folded downward by the hydraulic cylinders 124, 124 min. Then by the actuator 176 the opening ruler 172 is moved downward against the center of the envelope 10. With this movement the perforations 44, 46 are broken open and the note pile 36 is squeezed out of the envelope and arrived over the chute 182 into the counting automat 188. Now the chute becomes 182 by the actuator 814 in in Fig. 7 dashed drawn in second position brought. The strips 126 are now raised, and the electric motors 168 to have so for a long time excited, to itself the grab pins 66, 68 against the strength of the spiral springs 155 180 DEG. The two halves of the empty envelope slide now under the force of gravity onto the chute 182 and arrive from there into the wastebasket 190. The computer 192 excites now the electric motor 116 in opposite sense, until the supporting plate 64 again fully onto the base plate 80 is pushed. As well as the intermediate gear wheels 162 of the pinions 166 of the electric motors 168 become released, turn the grab pins 66, 68 under the pre-loading of the spiral springs 153 in in the Fig. 2 and 3 working position shown back. Then the piston rod of the actuator 84 is again driven out, whereby the supporting plate 64 again concisely into the front plate 60 is placed. The support plates 120, 120 min and the chute 182 are moved backward at the same time into their initial position. In accordance with by the computer 192 from the mass storage the 198 called up or by the central computer requested customer data the computer 192 arranges then the receipt printer 216 to the expenditure of a receipt, which contains in accordance with customer's request either only the bare fact of the delivery of an envelope with a certain seriennummer under delivery of the dispatching time or additionally still repeats the information applied by the customer on the reinforcement strip 22 and/or which result of the count of the counting automat 188 indicates. If the customer indicated for the mechanism of his account that he wants to be informed by telephone about the einwurf by envelopes, then activate the computer 192 at the same time the selecting equipment 218. The customer receives in such a way in shortest possible time the information over the fact that the person assigned by him does not have-meet the envelope correctly delivered such a feedback within usually a time sufficient for the Aufliefern of an envelope in, can immediately suitable steps is introduced. Uses

one one opposite Fig. 1 modified envelope, with which one of the perforations, e.g. the Perfora is replaced tion by beabstandete window 46 min, as in Fig. 1 broken suggested, and one uses an opening tool, which from a bar carried a majority of parallel opening fingers carries, which are movable into the windows 46 min, then remains the envelope 10 when out pushing the note pile coherently, and by the bar carrying the opening fingers he is finally down-pulled inevitably by the grab pins 66, 68. The Fig. 8-10 shows modified opening equipment, which dimension different with mechanically simpler structure for opening envelopes is suitable, however somewhat larger space requirement has. Construction units, those functionally above-mentioned with reference to the Fig. correspond to 2-7 construction units already described, are provided and in detail are described below not again again with the same reference symbols. The supporting plate 64 has now the form of a "L" standing on the head and is at the lower end of their in Fig. 8 vertically downward running, long thigh directly over the joint 82 attached at the housing 48. A einstueckige support plate 120 supplements the supporting plate 64 to a full rectangle and is likewise stored at the housing 48 over joints 123. Supporting plate 64 and support plate 120 form in in Fig. 8 ready position shown a smooth continuation of the narrow being certain front plate 60. The supporting plate 64 carries further grab pins 66 min and 68 min, which are carried by the long thigh of "L" and co-operate with the grab section 26 of the envelope 10 beside the grab pins 66, 68, which co-operate with the front grab section 24 of the envelope 10, which is intended now with the edge lefthand side of the envelope. The perforations 44, 46 run with the remark example after Fig. 8 essentially along the diagonals of the envelope 10. In detail the perforations run in such a way that their free end lies over the lower transversals weld 14, which only the user manufactured for locking the envelope, whereby the free arm cover 38 and the adhesive layers 40, 42 to be void to be able. In order to facilitate a breaking of the perforations 44, 46 open, the longitudinal weld 18 is interrupted by an edge recess 222 which is with the perforation end. If the user the envelope 10 on the grab pins 66, 68, 66 min, attached 68 min then he presses the tracer 200 and after latches of a Fronttuere 224, which is determined by a co-operating a trap unit 226, which contains a closing condition feeler and a controllable opening barrier,

with the schlossriegel, trains the computer 192 a drawing in cycle. In this first the supporting plate 64 and the support plate 120 are swivelled synchronously against the horizontal, until the supporting plate 64 against a housing-firm notice 228 runs. This can be supervised by a limit switch 230. The support plate 120 is then further-swivelled still for example around 45 DEG, until into the Fig. 9 and 10 position shown is reached. These movements can take place again via actuators or these replacing electric drives, those the better clarity for the sake of in the Fig. 8 to 10 is omitted.

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Der Rechner 192 steuert über eine Ventilbank 202 das Arbeiten der hydraulischen Arbeitszylinder 84, 124, 138, 176 und 184. Die Ventilbank 202 ist mit dem Auslass einer Druckpumpe 204 sowie mit einer Rücklaufleitung 206 verbunden, die zu einem



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With the opening equipment after the Fig. 8 to 10 no separate bar code read head 90 is present. Instead the picture output signal of the video cameras 178, 180 will become put down in digital form into main memories of the computer 192 and the grab sections 24, 26 appropriate display spaces on being present bar code information or other by machine readable information by a routine of the computing program evaluated. If an envelope certified for the einwurf is present, then a transparent chute part becomes 232 from a resting position in-sitting concisely in a window 234 of the rear wall 54 of the housing 48 into one in Fig. 10 shown working position tilted, in which the support plate 120, and a being certain exterior chute part of 236 a chute leading to the counting automat 188 form the chute part of 232. Now the opening ruler of 172 propelling actuators 176 will become subjected, the perforations 44, 46 when downward moving the opening ruler 172 broken open, and the note pile 36 arrives over those managing described chute into the counting automat. Now the chute part of 232 again into the rear wall 54 is tilted back and the support plate 120 is continued to swivel downward, until it fastens 239 at the top side of a chute plate manufactured from glass. The latter forms a chute leading to the wastebasket 190 together with a further external being certain chute part of 240. Then by one doubly working hydraulic cylinder 242 a Auswerfwinkel 244 is moved upward, which carries Auswerffinger 246, 248 on its top side. These are through movable by windows 250, 252, those in the supporting plate 64 between the grab pins 66, 68 and/or. 66 min and 68 min is intended. In this way the grab sections 24, 26 are down-pulled obligatorily by the grab pins and the envelope still connected over the envelope range lying between the grab sections arrived under force of gravity effect on the chute plate 238 and from there over the chute part 240 into the wastebasket 190. If the computer determines during the evaluation of the 180 pictures produced by the video cameras 178, that the inserted envelope is not

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to be received, then the support plate 120 and the presenting plate 64 in Fig become. against 10 into the vertical one tilted back, whereby a printed or acoustic error message takes place at the same time. The user can again actually take then the falsely inserted envelope. The program, after welc the computer 192 works, can be arranged in such a way that the computer is not then moved backward, if twice directly successively an envelope which can not be received becomes festgestel this envelope again for input opening, rather into the wastebasket 190 is given. For this that part of the program is jumped over, which the swivelling of the chute part of 236 and moving of the opening ruler 172 concern- concerning those support plate 120 directly into the position leading to the chute plate 238 shifted and which ejector angle 244 upward moved. That now any longer not held and at the emphasis did not support "wrong" envelope falls now unopened over the chute plate 238 into the wastebasket. The computer issues a voucher for this procedure over the receipt printer. An appropriate error message appears on minutes, which are spent over a printer or the monitor 194 to beginning of service on the bank clerk. This can take then the "wrong" envelope out of the wastebasket for further treatment. Such a programming of the computer 192 makes it possible to use in emergencies for a einwurf foreign envelopes also not planned or incorrect envelopes. One must press then after return of such an complained of envelope only simply the tracer 200 a second time and close the Fronttuere 224 again. In Fig. still another deflecting mirror is shown 10 with 254, which makes an arranging for the upper video camera possible 178 in the area remaining outside of the swiveling way of the supporting plate 64 with compact case dimensions. The Fig. 11 and 12 shows resistances to bending a container 300 with a note pile arranged therein 302. The container 300 consists of two pyramidenstumpffoermigen container bowls 304 and 306, which are connected by a squirted hinge 308. In in Fig. dashed to suggested hinged away position of the upper container bowl 304 the open container can 12 be stacked. The container bowls 304, 306 have in circumferential direction running a flange 310, 312, on that an adhesive layer 314, at the basis of the pyramidenstumpfes 316 in each case are attached, which was taken off in each case in the factory by a protective layer not shown in the design, which the user took off when closing the

container. Slots like saw teeth 318, 320, those with the edge of the bottom walls 322, 324 of the container bowl 304, 306 are intended, form being. The exterior surfaces of one or both bottom walls can carry labels with by machine readable information, similarly as the grab sections 24, 26 of the envelopes 10 described above. A such label is suggested with 326. The Fig. 13 and 14 shows equipment to open into the Fig. 11 and 12 of container shown 300. Components, which were already discussed in functionally equivalent form with managing described opening equipment for envelopes 10, are provided and in detail are described not again again with the same reference symbols. At the side panels 56, 58 of the housing 48 is intended lateral supporting bars 328, those together with above rails 330 a grab slot for the superimposed and by the adhesive layers 314 and 316 firmly connected flanges 310, 312 forms. A transparent opening stamp 332, whose edge outline corresponds to the outline of the internal edge of the groove 318 (or is is somewhat smaller), by an actuator 334 perpendicularly to the grab level given by the supporting bars 328 movably. With the impact the upper bottom wall 322 the break section given by the groove 318 splits and the opening stamps moves together with the separated bottom wall 322 against the top side of the note pile 302. Now over the note pile 302 strength is exerted on the lower bottom wall 324, whereby also this is broken off. The pile from bottom wall 324, note pile 302 and bottom wall 322 arrived now into a promotion pit 336, its edge outline under small distance of the edge outline of a broken off bottom wall follow with arrives the note pile 302 as pile in at the lowest end of the Foederschachtes 336 standing counting automats, like from Fig. 14 evidently. The remainder of the container 300 remaining on the supporting bars 328 is discharged by an actuator 338. Its piston rod attacks normally concisely in a Auswerffenster the 342 in-sat at a plate 340, which in the rear wall 58 is intended. The plate 340 carries a drawing lever 346, which exhibits turned side a ramp surface 348 on its the introduction opening of the equipment and against the rear wall 54 a vertical Mitnehmflaeche 350 has over a joint 344. The drawing lever 346 is downward linked up by a coil spring 352 supported at the plate 340, whereby a sharp edged lower corner right Hebelendes as well as the plate 340 forms the downward movement for limiting notice, while a rounded off upper corner this Hebelendes makes a free rotating of the drawing

lever for 346 possible in. Thus the drawing lever 346 is raised under spans of the coil spring 352 and arrived at the top side of the container wall 322, if a new container 300 is slid into the equipment. With breaking out to this container wall by the opening stamp 332 the drawing lever arrives then under the strength of the coil spring 352 again in in Fig. 14 shown working position. In order to make a way there moving of the opening stamp for 332 over the drawing lever 346 possible, a slot 354 is intended in this. Like Fig. the television camera 180 arranged behind the promotion pit 336 shows, is 13 and takes up the lower surface of the container 300 over a deflecting mirror 254. The latter is in such a way stored at the rear wheel-well wall by means of a joint 356 that it is between one concisely in a window 358 of this wheel-well wall in-sitting resting position and somewhat more than 45 DEG a working position tipped out from this position tiltable. In order to avoid that certified containers are not inserted, it is arranged behind the Fronttuere 224 a check plate 386, which exhibits an opening 388. Their form corresponds to the cross-sectional shape of the container 300. On at least one of the rails 328 and 330 successively several light barriers 390 working in reflection are intended, those with the flanges 310, 312 or these neighbouring sections of the side panels of the container co-operate in introduction direction. Ranges of different reflection are planned, e.g. in the form of holes, small recesses or increase with correctly fully pushed in permissible container receive one thus to the arrangement of the reflection marks just addressed appropriate output signal of the light barrier arrangement at the container in the distance of the light barriers, which can be interpreted e.g. as binary number of "101", if the container does not exhibit the marks "a hole", "hole", "no hole". The correct output signal of the light barrier arrangement is not received, if one does not push in exactly for the dispatching of planned container. If one steers one additionally in the promotion pit planned mobile chute in such a way that she makes a connection to a wastebasket when non--being present the correct output signal (this is thus different from the container collecting basket), then is altogether guaranteed that only contents from spent special containers arrive to the counting automat. With that opening equipment after Fig, modified further. 15 is again components, which were already described further above in functionally equivalent form, provided with the same

reference symbols as there and do not become in detail described. The supporting plate 64 is led a rectangular glass plate and with their lateral edges in guide grooves 78 of a camp framework 80 min. Its two lateral cheeks are firmly connected by a prop 360, which serves at the same time as stop bar. With it co-operating stop bars 362 and 364, which are fastened on the lower surface of the supporting plate 64, limit the Einwaertsbewegung and/or Auswaertsbewegung of the supporting plate 64. The camp framework 80 min is again over joints 82 attached at the housing 48 swivelling. In in Fig. a finger hole 366 is intended 15 on the left of convenient end of the supporting plate 64, so that the supporting plate 64 can be pulled with horizontal aligned camp framework 80 min of the user out of the housing 48, as in Fig. 15 by dash-dotted lines suggested. The user can do now one envelope 10 which can be opened, as he in Fig. is represented to 1, on the supporting plate 64 put, whereby now from lateral direction seen grab pins like saw teeth 66, 68 into the grab holes 28, 30 are inserted. The supporting plate 64 is then pushed in again into the equipment inside, and the Fronttuere 224 is closed, as described above. Two actuators 138 carry a head end plate 368, to which two halfcylindrical negative pressure bells 370, 372 locked at their ends is attached. These carry high and soft seals 374 at their free edges. The interior of the negative pressure bells 370, 372 is connectable over a line 376 and a 3/3 valve 378 alternatively with a vacuum piping 380 steered by the computer 192 and/or an air supply line 382. The computer 192 already switches the valve 378 when lowering the head end plate 368 into the negative pressure working position, and comes the seals 374 into the proximity of the obenliegenden foil wall of the envelope 10, then the foil is pulled against the seals 374 and in the line 376 develops themselves a vacuum. This structure of negative pressure is determined by a pressure probe 384, and the computer terminates a lowering of the head end plate 368 on that. Afterwards the actuator 124 is headed for by the computer in such a way that the supporting plate 64 is moved downward around 45 DEG and into Fig. 15 position shown reaches. In this it aligns again with a chute part 232, which was out-moved at the same time from the rear wall 54 of the housing 48. The computer subjects then the actuator 176 in such a way that the opening ruler 172 against the envelope 10 is moved, whereby the perforations

44, 46 are broken open and the note pile 36 of the envelope 10 is squeezed out, as already described above. After the note pile arrived over now a chute part the representing supporting plate 64 and the chute part 232 into the counting automat 188, the chute part of 232 again into the rear wall 54 is tilted back and the supporting plate 64 is continued to lower still. The computer terminated now the negative pressure admission of the negative pressure bells 370, 372 and connects latter for a short time interval with the air supply line 382. Thus the empty envelope 10 is repelled downward and arrived over the supporting plate 64 at in the bottom wall of the housing 48 planned an envelope delivery opening and from there into the wastebasket 190. Now the head end plate 368 and the supporting plate 64 are moved backward again into the starting position, those in Fig. 15 is broken suggested, and the equipment is then ready for the receipt of a further envelope.

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Bei dem Öffnungsgerät nach den Fig. 8 bis 10 ist kein gesonderter Barcode-Lesekopf 90 vorhanden. Stattdessen wird das Bildausgangssignal der Videokameras 178, 180 in digitaler Form in Arbeitsspeicher des Rechners 192 abgelegt und die den



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